

AMENDMENTS TO THE CLAIMS

Please amend claims 1, 2, 9, 10, and 29 as set forth below.

1. (CURRENTLY AMENDED) An optical pickup device comprising:
 - a first light source for emitting a first light beam having a first wavelength;
 - a second light source for emitting a second light beam having a second wavelength different from the first wavelength;
 - an objective lens for focusing said first light beam or said second light beam to the signal recording surface of an optical recording medium of a first type matching to the first wavelength or that of an optical recording medium of a second type matching to the second wavelength, whichever appropriate;
 - a photodetector for detecting the light beam focused on the signal recording surface of the optical recording medium of the first type or that of the optical recording medium of the second type, whichever appropriate, by the objective lens and reflected by the signal recording surface;
 - a diffraction element arranged in the light path from the light sources to the photodetector by way of one of the first or second type of optical recording medium, the diffraction element having a first diffraction angle and a second diffraction angle, wherein a difference between the first diffraction angle and the second diffraction angle is predetermined to offset a distance separating the first light source and the second light source; and
 - at least one of the first light beam adapted to be used for reading information signals from the signal recording surface of the optical recording medium of the first type and reflected by the reflecting surface, and the second light beam adapted to be used for reading information signals from the signal recording surface of the optical recording medium of the second type and reflected by the reflecting surface being diffracted by the diffraction element, wherein the first diffraction angle diffracts the first reflected light beam and the second diffraction angle diffracts the second reflected light beam so that the first reflected light beam and the second reflected light beam being focused to a same spot on the light receiving surface of the photodetector, and
 - wherein the diffraction element includes a pair of opposite surfaces and a

diffraction grating is disposed on a lower surface of the pair of opposite ~~surfaces~~surfaces, and
wherein a pattern depth of the diffraction grating is between a first depth that maximizes the primary diffraction efficiency of the first reflected light beam and a second depth that maximizes the primary diffraction efficiency of the second reflected light beam.

2. (CURRENTLY AMENDED) An optical pickup device comprising:
 - a first light source for emitting a first light beam having a first wavelength;
 - a second light source for emitting a second light beam having a second wavelength different from the first wavelength;
 - an objective lens for focusing said first light beam or said second light beam to the signal recording surface of an optical recording medium of a first type matching to the first wavelength or that of an optical recording medium of a second type matching to the second wavelength, whichever appropriate;
 - a photodetector for detecting the light beam focused on the signal recording surface of the optical recording medium of the first type or that of the optical recording medium of the second type, whichever appropriate, by the objective lens and reflected by the signal recording surface; and
 - a diffraction element arranged on the light path from the light sources to the photodetector by way of one of the first or second type of optical recording medium, the diffraction element having a first diffraction angle and a second diffraction angle, wherein a difference between the first diffraction angle and the second diffraction angle is predetermined to offset a distance separating the first light source and the second light source;;
 - each of the first light beam adapted to be used for reading information signals from the signal recording surface of the optical recording medium of the first type and reflected by the reflecting surface and the second light beam adapted to be used for reading information signals from the signal recording surface of the optical recording medium of the second type and reflected by the reflecting surface being diffracted by the diffraction element, wherein the first diffraction angle diffracts the first reflected light beam and the second diffraction angle diffracts the second reflected light beam so that the first reflected light beam and the second reflected light beam being focused to a same spot on the light receiving surface of the photodetector,
 - wherein the diffraction element includes a pair of opposite surfaces and a diffraction grating is disposed on a lower surface of the pair of opposite ~~surfaces~~surfaces, and

wherein a pattern depth of the diffraction grating is between a first depth that maximizes the primary diffraction efficiency of the first reflected light beam and a second depth that maximizes the primary diffraction efficiency of the second reflected light beam.

3. – 8. (CANCELED).

9. (CURRENTLY AMENDED) An optical disc device comprising:
a rotary operating mechanism for driving one or more than one optical discs
operating so many pieces of optical recording medium as to rotate; and
an optical pickup device arranged opposite to the signal recording surfaces of the
one or more than one optical discs driven to rotate by said rotary operating mechanism;
said optical pickup device comprising:
a first light source for emitting a first light beam having a first wavelength;
a second light source for emitting a second light beam having a second
wavelength different from the first wavelength;
an objective lens for focusing said first light beam or said second light beam to
the signal recording surface of an optical recording medium of a first type matching to the first
wavelength or that of an optical recording medium of a second type matching to the second
wavelength, whichever appropriate;
a photodetector for detecting the light beam focused on the signal recording
surface of the optical recording medium of the first type or that of the optical recording medium
of the second type, whichever appropriate, by the objective lens and reflected by the signal
recording surface; and
a diffraction element arranged on the light path from the light sources to the
photodetector by way of one of the first or second type of optical recording medium, the
diffraction element having a first diffraction angle and a second diffraction angle, wherein a
difference between the first diffraction angle and the second diffraction angle is predetermined
to offset a distance separating the first light source and the second light source;
at least either the first light beam adapted to be used for reading information
signals from the signal recording surface of the optical recording medium of the first type and
reflected by the reflecting surface or the second light beam adapted to be used for reading
information signals from the signal recording surface of the optical recording medium of the
second type and reflected by the reflecting surface being diffracted by the diffraction element,

wherein the first diffraction angle diffracts the first reflected light beam and the second diffraction angle diffracts the second reflected light beam so that the first reflected light beam and the second reflected light beam being focused to a same spot on the light receiving surface of the photodetector,

wherein the diffraction element includes a pair of opposite surfaces and a diffraction grating is disposed on a lower surface of the pair of opposite ~~surfaces~~ surfaces, and wherein a pattern depth of the diffraction grating is between a first depth that maximizes the primary diffraction efficiency of the first reflected light beam and a second depth that maximizes the primary diffraction efficiency of the second reflected light beam.

10. (CURRENTLY AMENDED) An optical disc device comprising:
 - a rotary operating mechanism for driving one or more than one optical discs operating so many pieces of optical recording medium as to rotate; and
 - an optical pickup device arranged opposite to the signal recording surfaces of the one or more than one optical discs driven to rotate by said rotary operating mechanism;
 - said optical pickup device comprising:
 - a first light source for emitting a first light beam having a first wavelength;
 - a second light source for emitting a second light beam having a second wavelength different from the first wavelength;
 - an objective lens for focusing said first light beam or said second light beam to the signal recording surface of an optical recording medium of a first type matching to the first wavelength or that of an optical recording medium of a second type matching to the second wavelength, whichever appropriate;
 - a photodetector for detecting the light beam focused on the signal recording surface of the optical recording medium of the first type or that of the optical recording medium of the second type, whichever appropriate, by the objective lens and reflected by the signal recording surface; and
 - a diffraction element arranged on the light path from the light sources to the photodetector by way of one of the first or second type of optical recording medium, the diffraction element having a first diffraction angle and a second diffraction angle, wherein a difference between the first diffraction angle and the second diffraction angle is predetermined to offset a distance separating the first light source and the second light source;

each of the first light beam adapted to be used for reading information signals from the signal recording surface of the optical recording medium of the first type and reflected by the reflecting surface and the second light beam adapted to be used for reading information signals from the signal recording surface of the optical recording medium of the second type and reflected by the reflecting surface being diffracted by the diffraction element, wherein the first diffraction angle diffracts the first reflected light beam and the second diffraction angle diffracts the second reflected light beam so that the first reflected light beam and the second reflected light beam being focused to a same spot on the light receiving surface of the photodetector,

wherein the diffraction element includes a pair of opposite surfaces and a diffraction grating is disposed on a lower surface of the pair of opposite ~~surfaces~~ surfaces, and wherein a pattern depth of the diffraction grating is between a first depth that maximizes the primary diffraction efficiency of the first reflected light beam and a second depth that maximizes the primary diffraction efficiency of the second reflected light beam.

11. – 16. (CANCELED).

17. (PREVIOUSLY PRESENTED) The optical pickup device of claim 1, wherein the diffraction element generates a pair of sub-beams from the first reflected light beam and the second reflected light beam, where applicable.

18. (PREVIOUSLY PRESENTED) The optical pickup device of claim 1, wherein the diffraction element includes a diffraction grating pattern on one of the opposite side surfaces of a plate.

19. (PREVIOUSLY PRESENTED) The optical pickup device of claim 18, wherein the diffraction grating pattern is a blazed grating design.

20. (PREVIOUSLY PRESENTED) The optical pickup device of claim 2, wherein the diffraction element generates a pair of sub-beams from the first reflected light beam and the second reflected light beam, where applicable.

21. (PREVIOUSLY PRESENTED) The optical pickup device of claim 2, wherein the diffraction element includes a diffraction grating pattern on one of the opposite side surfaces of a plate.

22. (PREVIOUSLY PRESENTED) The optical pickup device of claim 21, wherein the diffraction grating pattern is a blazed grating design.

23. (PREVIOUSLY PRESENTED) The optical pickup device of claim 9, wherein the diffraction element generates a pair of sub-beams from the first reflected light beam and the second reflected light beam, where applicable.

24. (PREVIOUSLY PRESENTED) The optical pickup device of claim 9, wherein the diffraction element includes a diffraction grating pattern on one of the opposite side surfaces of a plate.

25. (PREVIOUSLY PRESENTED) The optical pickup device of claim 24, wherein the diffraction grating pattern is a blazed grating design.

26. (PREVIOUSLY PRESENTED) The optical pickup device of claim 10, wherein the diffraction element generates a pair of sub-beams from the first reflected light beam and the second reflected light beam, where applicable.

27. (PREVIOUSLY PRESENTED) The optical pickup device of claim 10, wherein the diffraction element includes a diffraction grating pattern on one of the opposite side surfaces of a plate.

28. (PREVIOUSLY PRESENTED) The optical pickup device of claim 27, wherein the diffraction grating pattern is a blazed grating design.

29. (CURRENTLY AMENDED) An optical pickup device comprising:
a first light source for emitting a first light beam having a first wavelength;
a second light source for emitting a second light beam having a second wavelength different from the first wavelength;
an objective lens for focusing said first light beam or said second light beam to the signal recording surface of an optical recording medium of a first type matching to the first wavelength or that of an optical recording medium of a second type matching to the second wavelength, whichever appropriate;
a photodetector for detecting the light beam focused on the signal recording surface of the optical recording medium of the first type or that of the optical recording medium

of the second type, whichever appropriate, by the objective lens and reflected by the signal recording surface; and

a diffraction element arranged on the light path, wherein the diffraction element includes a first diffraction angle and a second diffraction angle, wherein a difference between the first diffraction angle and the second diffraction angle is predetermined to offset a distance separating the first light source and the second light source;

at least either the first light beam adapted to be used for reading information signals from the signal recording surface of the optical recording medium of the first type and reflected by the reflecting surface or the second light beam adapted to be used for reading information signals from the signal recording surface of the optical recording medium of the second type and reflected by the reflecting surface being diffracted by the diffraction element, wherein the first diffraction angle diffracts the first reflected light beam and the second diffraction angle diffracts the second reflected light beam so that the first reflected light beam and the second reflected light beam being focused to a same spot on the light receiving surface of the photodetector,

wherein the diffraction element includes a pair of opposite surfaces and a diffraction grating is disposed on a lower surface of the pair of opposite ~~surfaces~~surfaces, and

wherein a pattern depth of the diffraction grating is between a first depth that maximizes the primary diffraction efficiency of the first reflected light beam and a second depth that maximizes the primary diffraction efficiency of the second reflected light beam.